California Air Resources Board (CARB) Kick-off Meeting

Improved Assessment and Tracking of Health Impacts for California Communities Most Burdened by Pollution

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UCLA Center for Healthy Climate Solutions (C-Solutions)

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CARB Project
21RD005

Presentation Overview

- Comite Civico del Valle (CCV) Introduction
  - Luis Olmedo, Executive Director
  - Christian Torres, Special Projects Manager
- Project Overview
- Project Role of the UCLA and Tracking California (CA) Teams
- Background: AB 617 (C. Garcia, Chapter 136, Statutes of 2017) and other disadvantaged communities
- Methodology and Preliminary Data Exploration
- Questions/Discussion

AB 617 On-the-ground perspectives from CCV

Communities selected for the program suffer disproportionate burdens of pollution.

Concerned community, advocates, and health professionals participate in the program in hopes to better local situations.

Program is not perfect, but it has created opportunities to address issues through emissions reductions projects.

What have we heard?

- Why data gaps affect public health outcomes.
- How the emissions reductions will affect health outcomes in the AB 617 and other disadvantaged communities (DACs).
- Incorporate the work EJ & CBO's have been doing to address health concerns affected by air pollution.

Examples of Groundwork

AB 617 Leadership

Asthma Programs

CARB Research Collaborations

Community Air Grants

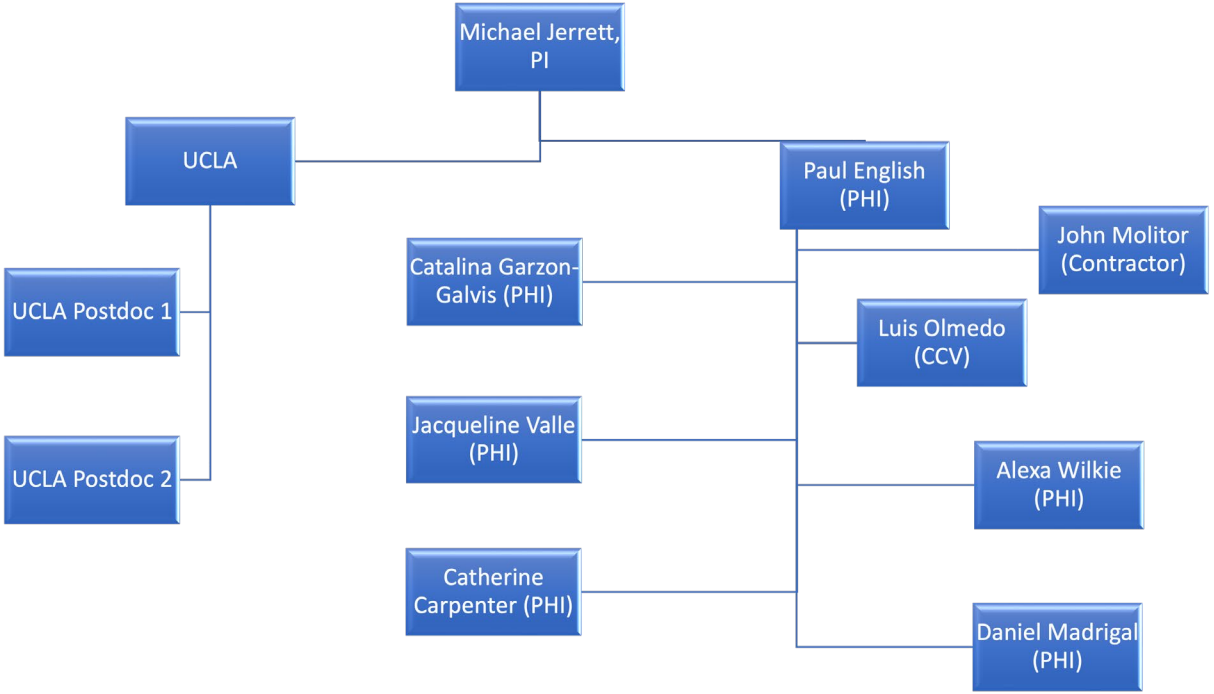
Supplemental Environmental Projects (SEPs)

Advocacy

Project Overview

- This project will develop a comprehensive health tracking system that is scientifically valid and responsive to community concerns.
- Where possible, ZIP code-scale estimates of rates of disease and death will be computed.
- We will then attempt to identify intervention(s) affecting impacted communities.
- If acceptable to the ARB and community groups, we will evaluate using state-of-the-art causal models developed by project researchers.
- All the information generated will be displayed on an easily accessible web-based dashboard.

Organizational Chart



Background

- Assembly Bill (AB) 617 directs the California Air Resources Board (CARB) and local air districts to "take measures to protect communities disproportionally impacted by air pollution." (Sacramento Metro Air Pollution Control District [SMAPCD], 2021).
- Two of the significant components of AB 617 include making funds available for:
  1. Air districts and communities for community-based air monitoring and
  2. Community-Specific Emission Reduction Plans (CERP)

Background

An important aspect of both programs is understanding and tracking potential improvements to community health that accrue as a direct result of emission reductions programs.

At present, no systematic tracking system is in place.

In consultation with AB 617 and other disadvantaged communities, this project will develop a comprehensive health tracking system that is scientifically valid and responsive to community concerns.

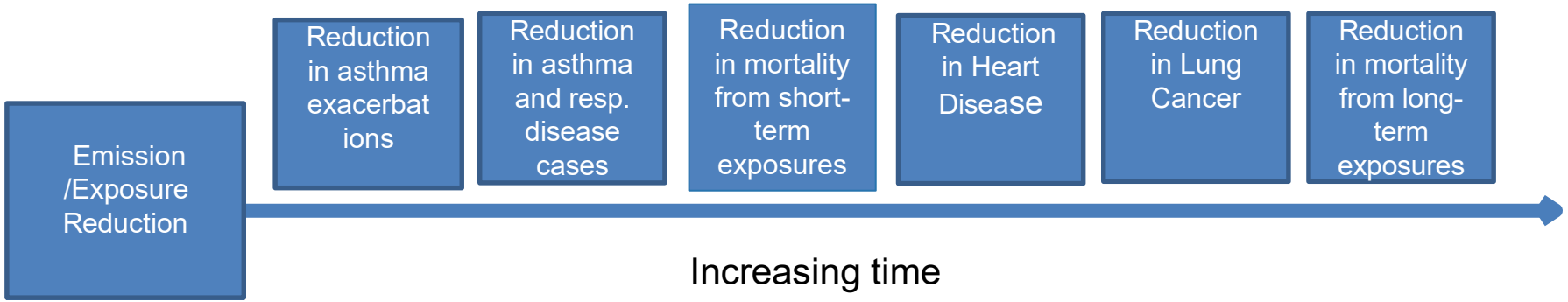
Project Task 1: Overview

Task 1: Develop a comprehensive and sustainable set of health indicators from administrative data for tracking health and disease in AB 617 and other disadvantaged communities.

Photo Source: Photo taken by Nina Riggio for NBC News. Web source: https://www.nbcnews.com/news/us-news/low-income-california-communities-enact-plan-fight-disproportionate-air-pollution-n1172421

Criteria for Health Indices

1. **Proximal:** Ideal index should be proximal in time to air pollution reduction.



Criteria for Health Indices

2. Sensitivity: Ideal index would be sensitive to changes in emissions/exposure

3. Timely: Data needs to be available on a timely basis to be able evaluate the effects of pollution/exposure reductions – preferably from public sources accessible to all

4. Scale: Data needs to be available at a small-area scale (census tract or ZIP code) for tracking of neighborhood impacts

5. Completeness/Representativeness: Ideal index should be statewide and representative of CA residents' health.

6. Use of existing data/tools: There are a number of statewide screening tools, such as CalEnviroScreen and the CA Healthy Places Index which could be considered rather than creating new indices

Candidate	Proximal	Sensitive	Timely	Scale	Complete	Representative	Cost
Hosp/ER Data; CHIS Survey	High	High	Low	Low to Moderate	High	Low	Low
Asthma Cohort	High	High	High	High	N/A	Only of pop at high risk	High
Syndromic Surveillance	High	High	High	High	High	Moderate	High
Resp Symptoms/ Medication Surveys	High	High	High	High	High	High	High
Analysis of Pharmacy data	High	UK	High	High	High	Partial	High
Biomonitoring	High	UK	High	High	Depends on participation	Depends on participation	High

Project Task 1; Sub-task 1: Overview

Engage community members to gather information about communities, including relevant environmental, social, political, and voting history of the areas to inform the approach and methods.

1

Deliverable 1: Submit agendas and notes from monthly planning meetings to plan and implement outreach and engagement project activities.

2

Deliverable 2: Conduct quarterly conference calls to inform planning and implementation of community engagement activities.

Project Task 1; Sub-task 2: Overview

Identify and reach out to potential community partner organizations serving on Community Steering Committees to seek their guidance on the approach for engaging communities to develop neighborhood-level metrics and data visualizations.

1

Deliverable 1: Develop outreach plan for Community Steering Committee members in selected communities and other community stakeholders.

Photo Source: https://lasentinel.net/south-coast-aqmd-finds-justice-for-blacks-latinos-and-underserved-communities.html

Project Task 1; Sub-task 2: Overview

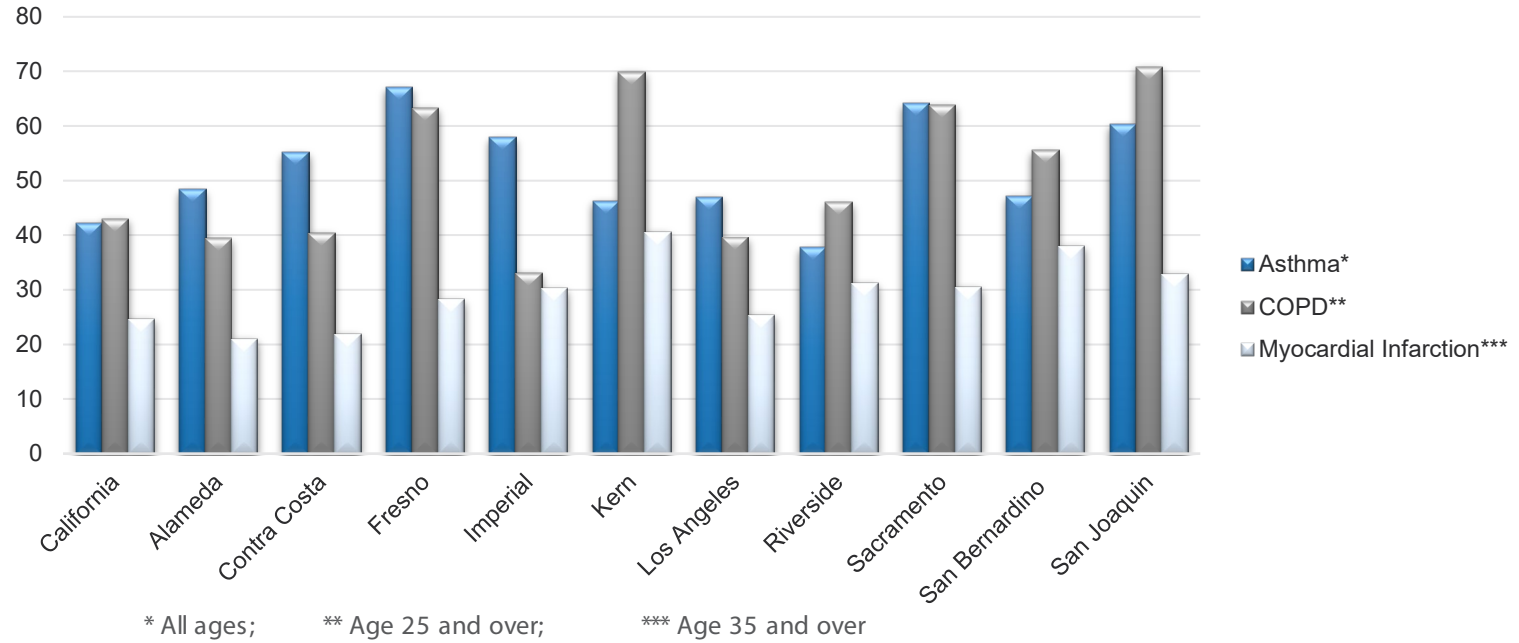
Inputs	Activities	Outcomes	Impact
Community Stakeholders Contractor Technical Resources CARB Allies in Reducing Emissions (AIRE) Collaborative	• Gather information about the community to inform approach and methods. • Share plain language background in English and Spanish • Conduct in-person, on-the-ground networking, and outreach to local stakeholders. • Convene virtual regional meetings in partnership with community organizations. • Obtain input from Community Steering Committee members in communities	• Increase community awareness about prioritized health outcomes. • Inform planning and build community relationships. • Identify gaps in neighborhood-level health data. • Identify community health impacts of concern and potential community health metrics to include. • Receive community guidance on approaches to engaging communities	• Ownership of research and health outcome tracking data by all stakeholders. • Public access to useful data that addresses community priorities and data needs for decision-making.

Project Task 1; Sub-task 2: Overview

Condition	International Statistical Classification of Diseases (ICD-10) code (Primary Diagnosis) or Source
Morbidity	
Asthma	J45
Bronchitis (acute)	J20
Chronic Obstructive Pulmonary Disease (>= 25 years)	J41-J44
Pneumonia	J12-J18
Heart Disease	100-I09, I11, I13, I20-I51
Myocardial Infarction (>= 35 years)	I21-I22
All-causes	Death Certificates
Circulatory Disease	199.9
Congestive heart failure	I50.33
Diabetes (Type 2)	E11.21
Mortality	
Asthma	J45
Chronic Obstructive Pulmonary Disease (>= 25 years)	J41-J44
Pneumonia	J12-J18
Heart Disease	100-I09, I11, I13, I20-I51
Myocardial Infarction (>= 35 years)	I21-I22
Circulatory Disease	199.9
Congestive heart failure	I50.33

Age Adjusted ER Visit Rates by AB 617 Counties (2018)

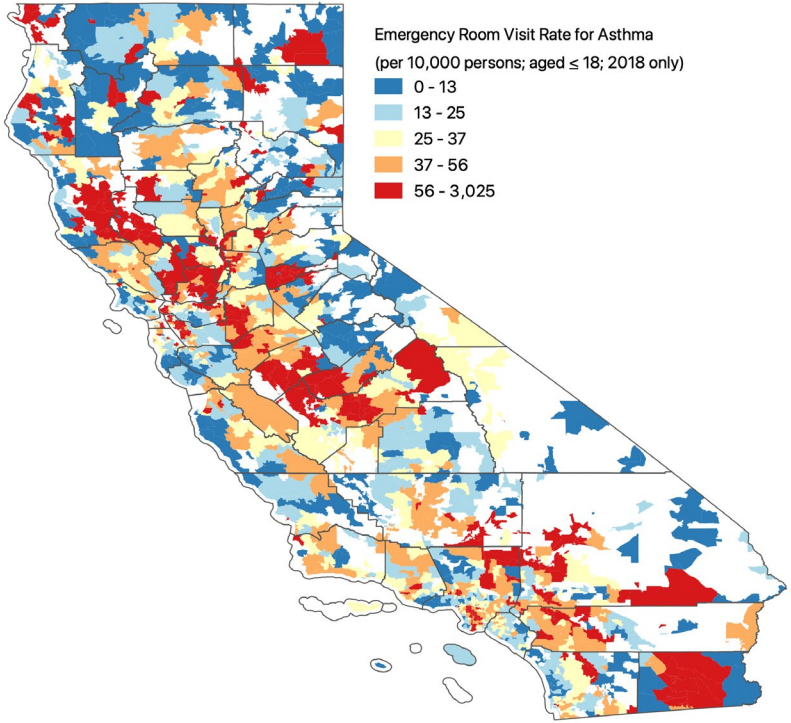
Rates per 10,000 residents (all race/ethnicities and both sexes)



* All ages; ** Age 25 and over; *** Age 35 and over

ER Visit Rate for Pediatric Asthma (2018)

per 10,000 persons



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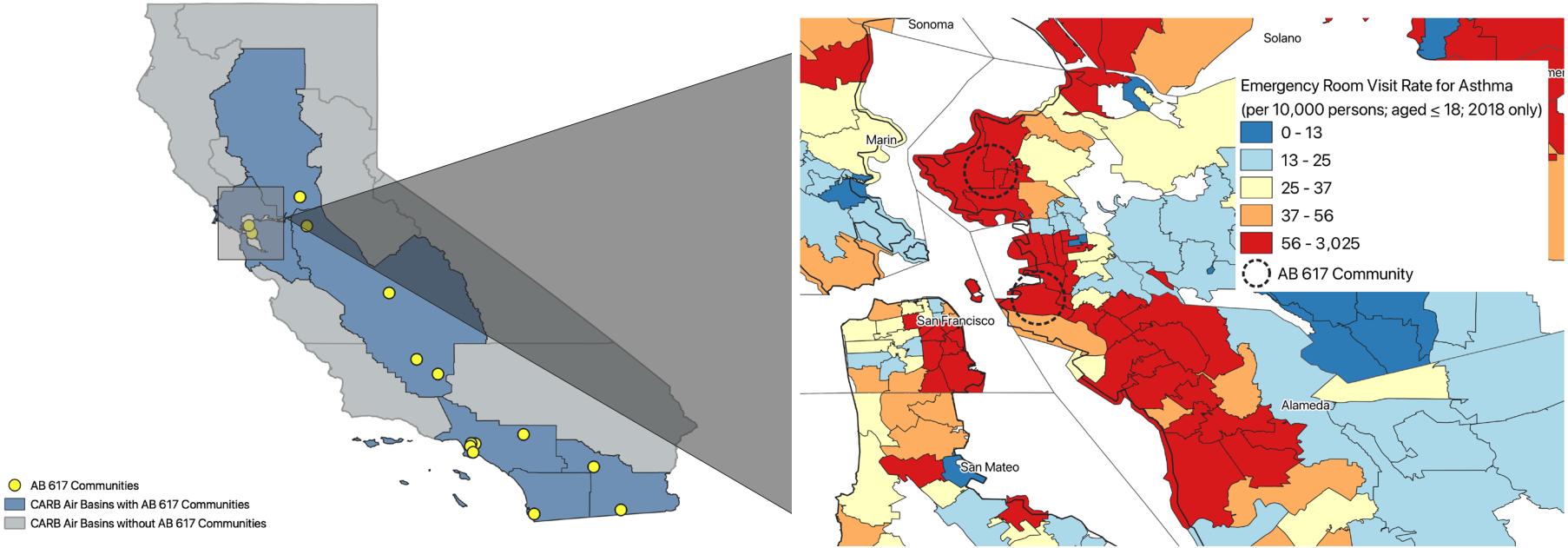

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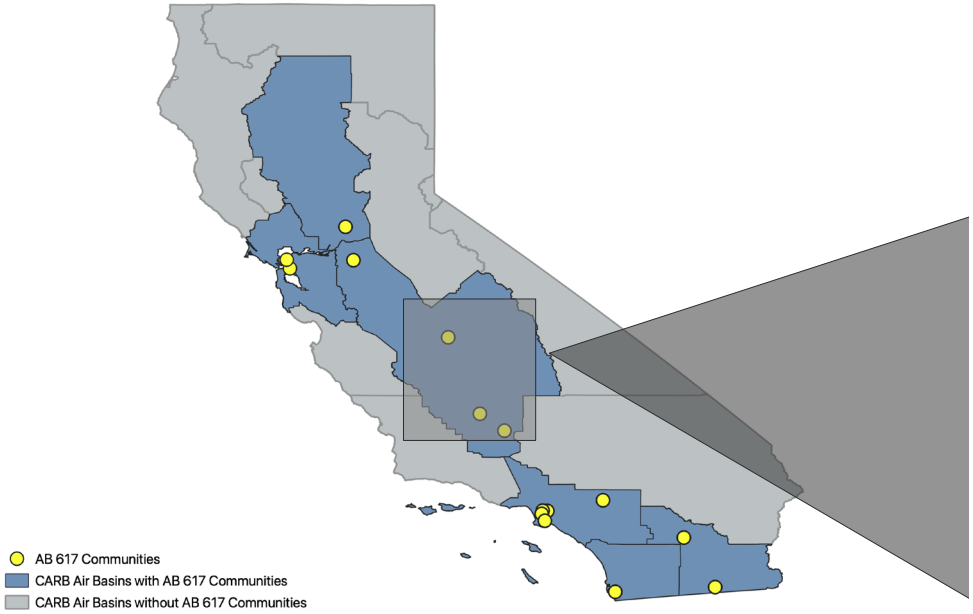

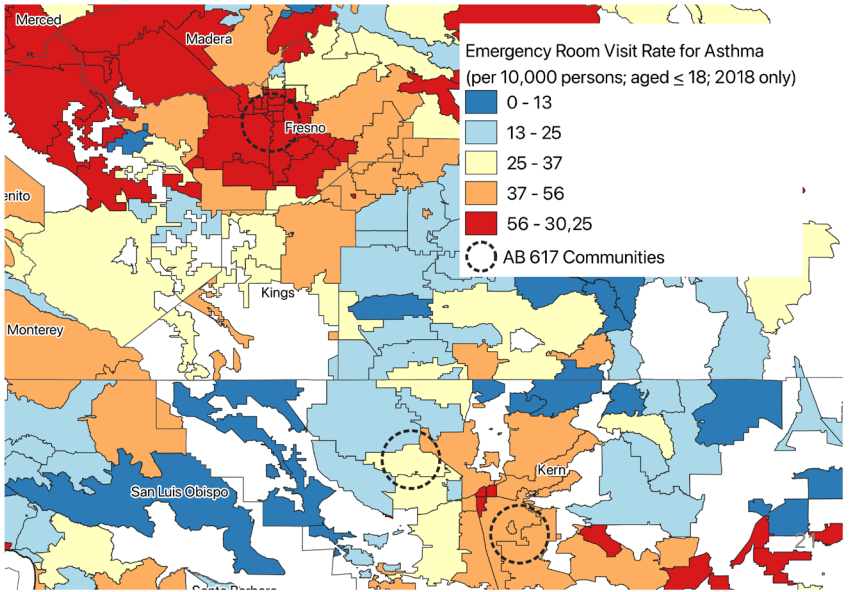

ER Visit Rate for Pediatric Asthma (2018)

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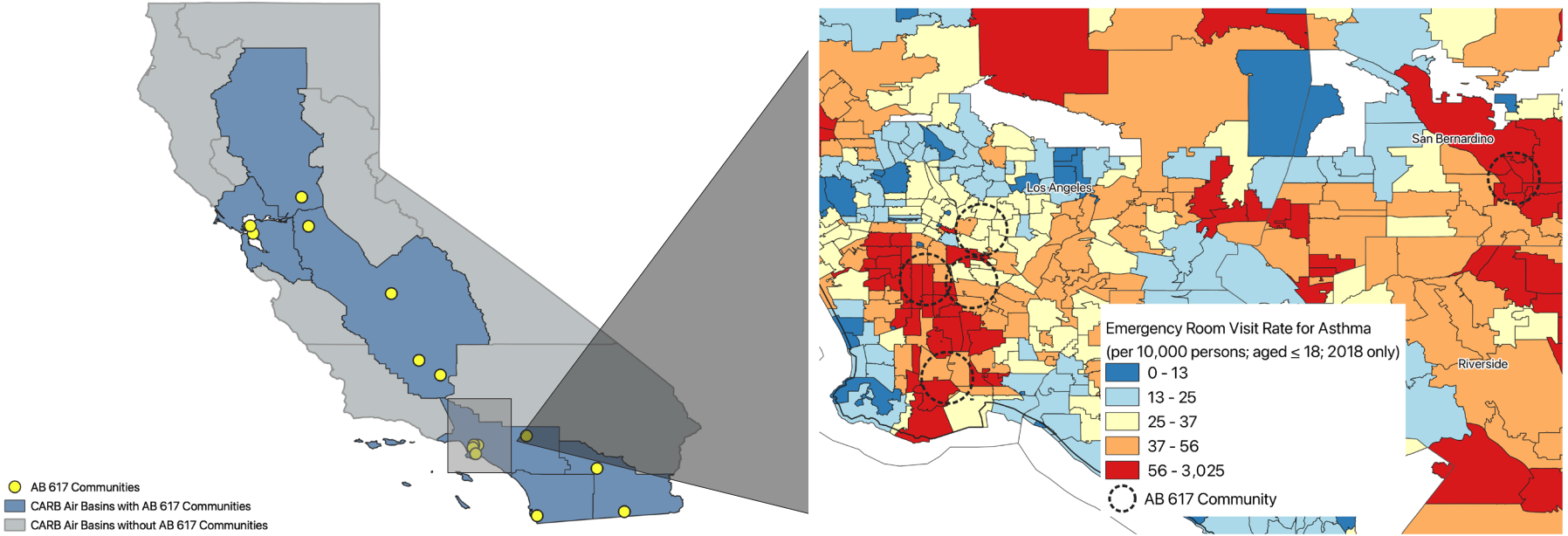
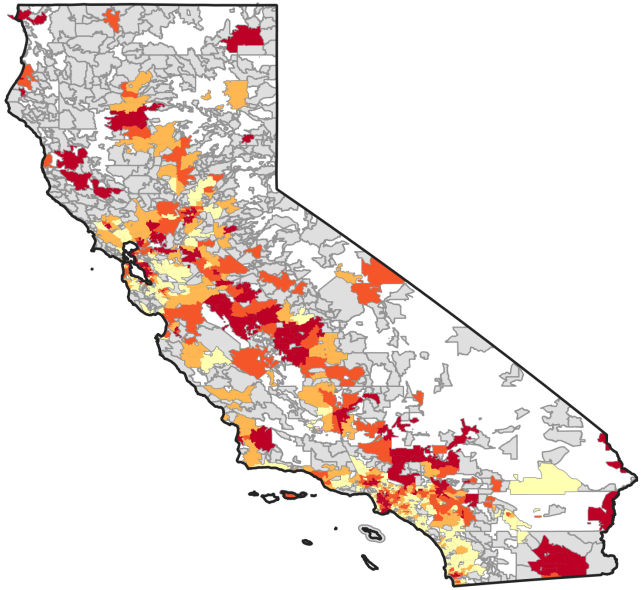
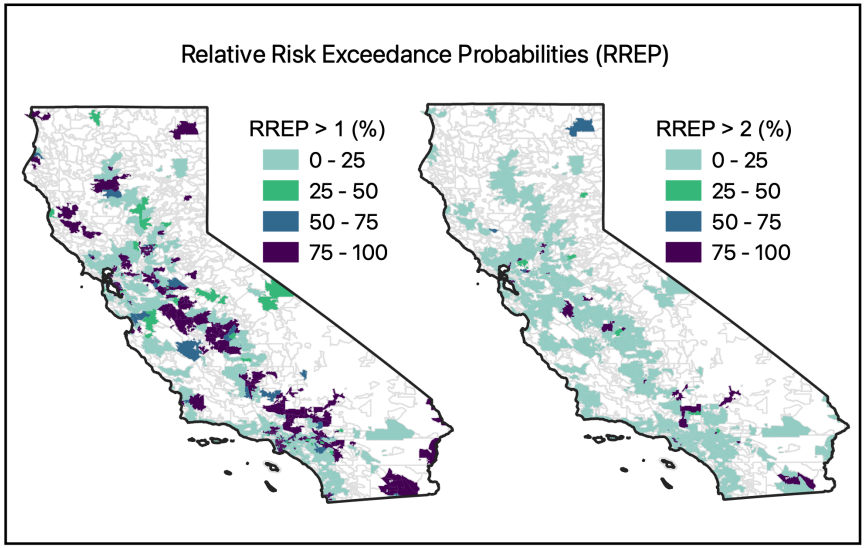


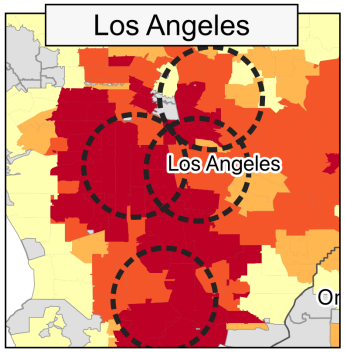


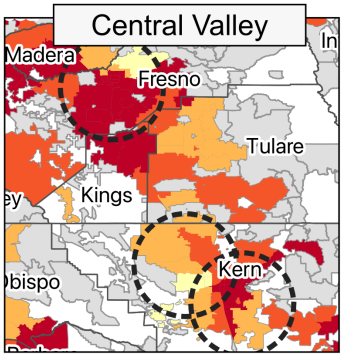


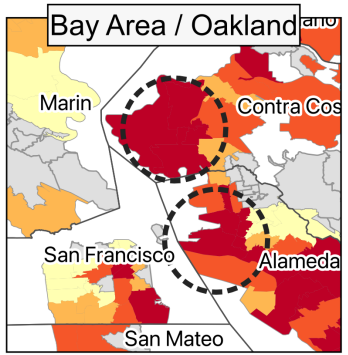
ER Visits for Asthma (2016)

Relative Risk (RR)

- 0.2 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- 1.2 - 4.8
- Incomplete or suppressed data
- AB 617 Community







Project Task 1; Sub-task 2: Overview

1

Deliverable 1: Develop outreach plan for Community Steering Committee members in selected communities and other community stakeholders.

2

Deliverable 2: Write and disseminate plain language project outreach materials translated into languages identified in consultation with community.

3

Deliverable 3: Submit documentation of outreach listing correspondence and outcomes from calls and meetings to conduct project outreach to community stakeholders.

Project Task 1; Sub-task 2: Overview

4

Deliverable 4: Submit agendas, materials and notes from virtual regional meetings with community stakeholders to gather feedback to inform the development of community health metrics and web-based dashboard displays.

5

Deliverable 5: Submit summary of data gaps identified on potential neighborhood-level health metrics based on input from community stakeholders.

6

Deliverable 4: Comprehensive and sustainable set of health indicator for tracking disease in communities.

Project Task 1; Sub-task 3: Overview

Sub-task 3: We will consult with the public, air districts, and CARB staff to identify appropriate air quality interventions to evaluate with quasi experimental models, with the aim of assessing whether measurable health benefits have accrued.

If the we are unable to identify a suitable newer policy to evaluate, we will use the Goods Movement Actions (2007).

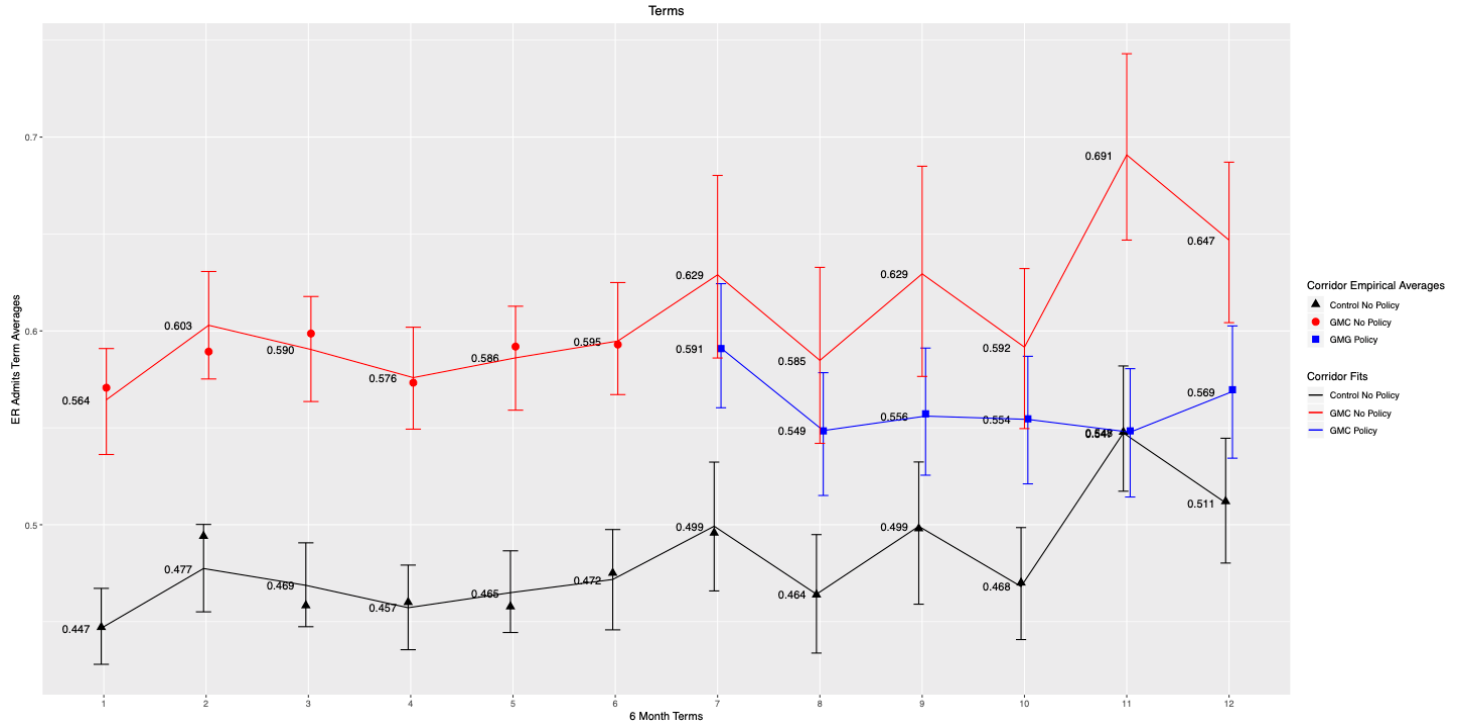
Photo Source: NorthOakland.Net
https://oaklandnorth.net/tag/ab-617/

Project Task 2: Overview

Task 2: Develop a quasi-experimental model (following subtask 3) framework to assess health improvements from air quality measures affecting communities most burdened by pollution.

Statistical Assessments for Specified Tasks	**Final Deliverables**
Calculate rates of the health outcome data using ZIP code populations as the denominator, age-specific or age-adjusted rates to the 2000 U.S. standard population, controlling for differences in age distribution.	Comprehensive and sustainable set of health indicators for tracking disease in AB 617 communities.
Develop statistical modeling framework based on Difference-in-Difference (DiD) models	Assessment of intervention improvements affecting AB 617 communities.
Graphically illustrate how DiD methods can be used to assess the policy effects of interventions using suitable controls.	Creation of public web-based dashboard for displaying health and related information.

Project Task 2: Overview

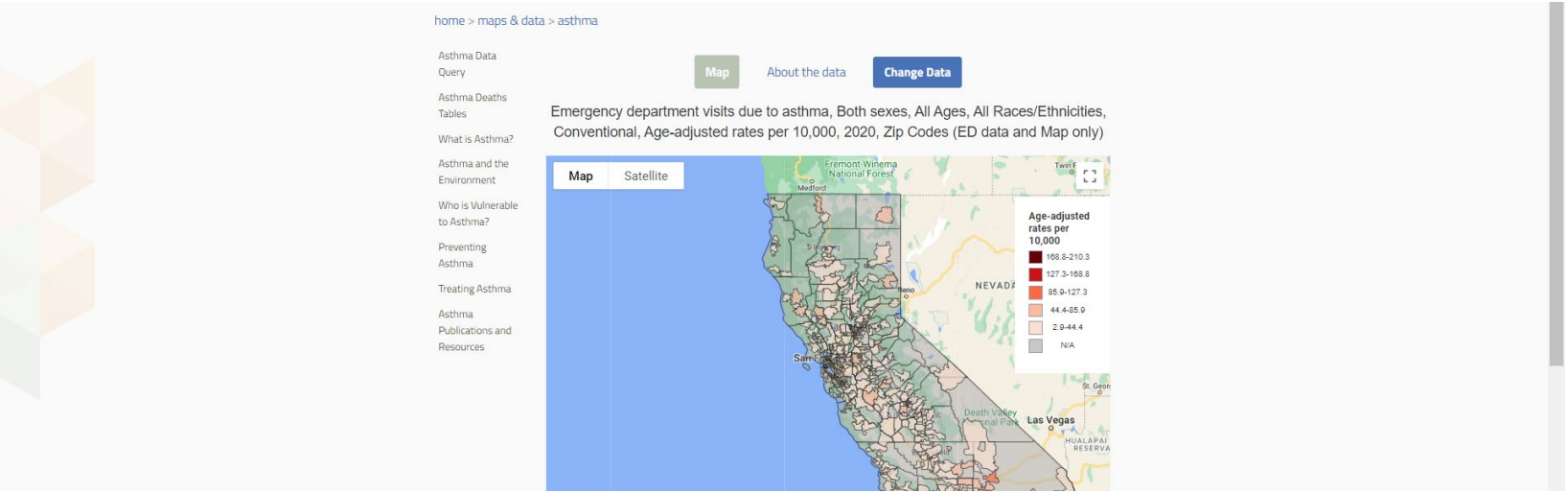


Criteria for Selecting Health Intervention

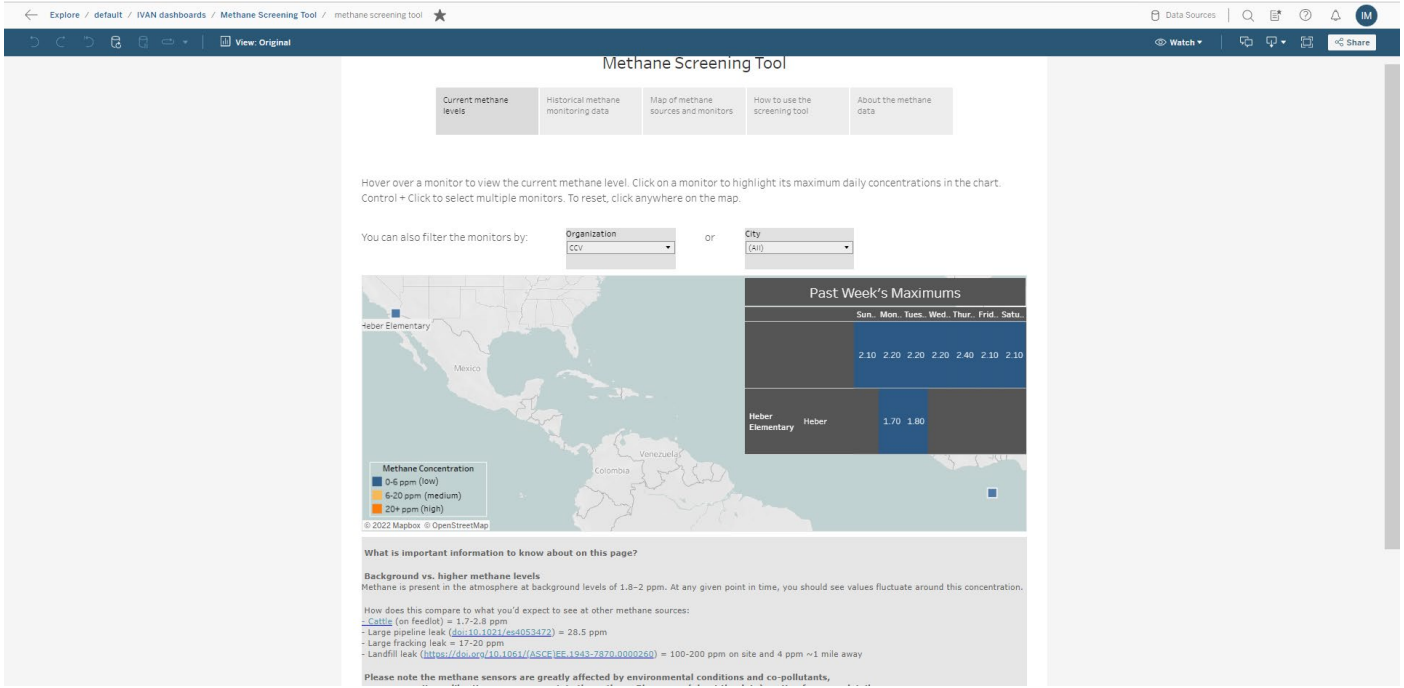
- Implemented in a temporally consistent manner & within a short time period. (e.g., Goods Movement Program (GMP) 2007; not Boiler emission reduction program).
- Impacts affect a large enough population to apply statistical models and derive results.
- Intervention has been actively implemented for a length of time that would result in measurable health benefits. (e.g. GMP, not SCAQMD Warehousing Rule)
- Intervention must be implemented in a way that one could clearly identify both an “intervention” and “control” group.
- Identified as an intervention of interest to the community and the ARB after community consultation.
- Not influenced by COVID (fully implemented by ~2016).

Project Task 3; Sub-task 1: Overview

Engage community members about the most useful format for the web-based dashboard.



Project Task 3; Sub-task 1: Overview



Project Task 3; Sub-task 2: Overview

Results will be presented on the PHI's Tracking California website with a web-based dashboard extension which will give information on potential health problems in selected neighborhoods.

1

Deliverable 1: Construct a web-based dashboard, that can be easily updated by Tracking California, which visualizes and translates the study results for the public.

2

Deliverable 2: Submit documentation of methods for data updates, software code, and user's manual.

3

Deliverable 3: Complete community peer review of project results, including the final list of selected community health metrics, health report cards, and peer-reviewed manuscripts.

Questions?

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Citations from this presentation available upon request.

Thank You